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NAVY SHIPBUILDING ALLEGATIONS OF MISCHARGING AT BATH
IRON WORKS(U) GENERAL ACCOUNTING OFFICE WASHINGTON DC
NATIONAL SECURITY AND INTERNATIONAL AFFAIRS DIV

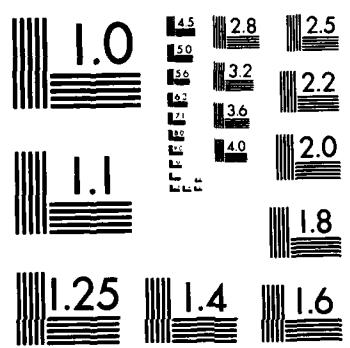
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Washington, D.C. 20548

National Security and
International Affairs Division

B-242137

July 8, 1991

The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

This report summarizes our analysis of the Navy's review of allegations of improper charges and other contractual issues at Bath Iron Works, Bath, Maine.

As requested, we plan no further distribution of this report until 30 days after its issue date, unless you publicly announce its contents earlier. At that time, we will send copies to the Secretaries of Defense and the Navy and appropriate congressional committees. We will make copies available to others upon request.

Please contact me on (202) 275-6504 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix I.

Sincerely yours,



Martin M. Ferber
Director, Navy Issues

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Executive Summary

Purpose

In October 1989, GAO received allegations from an anonymous source involving improper charging on U.S. Navy shipbuilding contracts for the CG-47 cruiser and DDG-51 destroyer programs at Bath Iron Works Corporation, Bath, Maine. At the same time, the Navy received similar allegations and began looking into them. In the interest of not duplicating the Navy's efforts, the Chairman, Subcommittee on Investigations, House Committee on Energy and Commerce, requested that GAO review the Navy's work to determine whether the allegations were adequately covered. The Navy's review was nearly complete as of April 1991.

Background

Bath Iron Works has been a major shipbuilder in the CG-47 cruiser and DDG-51 destroyer programs for many years. Under these programs, Bath Iron Works has been responsible for design and engineering work under various services and construction contracts. Under services contracts, which are generally cost-reimbursable, it provides engineering and other services for the ship programs. Under construction contracts, which are generally fixed-price incentive, it actually builds the ships. The Naval Sea Systems Command, Washington, D.C., and the Office of the Supervisor of Shipbuilding, Bath, Maine, are responsible for negotiating contracts and contract changes as well as for overseeing Bath Iron Works' performance.

Proper allocation of labor charges is important because of the differences in the types of contracts. In general, on a cost-reimbursable contract, the Navy pays the costs incurred under the contract; however, on a fixed-price incentive contract, the Navy pays a fixed amount, and the Navy and the contractor share costs if the fixed amount is exceeded. If costs that should be charged to fixed-price contracts are charged to cost-reimbursable contracts, the Navy would pay more than it should.

The anonymous source alleged that a Bath Iron Works official was responsible for intentional mischarging of contracts and for inappropriate actions on other contractual matters. Specifically, it was alleged that Bath Iron Works (1) incorrectly charged labor hours on the cruiser program and refused to agree to certain contract adjustments, (2) charged the Navy for certain ripout and rework on the cruiser program that it had not done, (3) improperly charged engineering labor hours on the destroyer program to a cost-reimbursable services contract when they should have been charged to a fixed-price incentive construction contract, and (4) did not provide the Navy accurate data to justify contract costs on a destroyer contract modification.

Results in Brief

On the basis of its analysis of the improper charges and other problems disclosed in the Navy's review of the allegations, GAO concluded that the Navy's oversight of contracts at Bath Iron Works was ineffective and contributed directly to the improper charges and problems found. In addition, the Navy's review of the allegations was inadequate.

The Navy did find some improper charges, and actions have been taken to recover several millions of dollars in the cruiser and destroyer programs. However, an accurate assessment of improper charges in the destroyer program will never be known because of significant data weaknesses on contract charges at Bath Iron Works.

Finally, the Navy did not exercise proper stewardship of government funds because it restructured the fixed-price destroyer contract with Bath Iron Works without adequately justifying that the \$37 million it was paying was fair and reasonable.

Principal Findings

Deficiencies in the Navy's Review

The Naval Inspector General controlled the Navy's review and issued reports based primarily on work performed by the Navy's Office of the Supervisor of Shipbuilding in Bath, assisted by the Defense Contract Audit Agency. Despite the intentional or criminal nature of the allegations, the oversight office was tasked to review the allegations rather than a professional investigative organization. The Defense Contract Audit Agency did later refer certain matters to the Naval Investigative Service, which concluded that no intentional mischarging had occurred.

GAO believes that the primary reliance on the Office of the Supervisor of Shipbuilding at Bath to do the review presented a conflict of interest, because the Office was responsible for overseeing the activities at Bath Iron Works that were the subject of the allegations. Also, there was a conflict in Bath Iron Works becoming an active participant in parts of the Navy's review.

GAO also found deficiencies relating to planning, documenting, and reporting the results of the Naval Inspector General's review. For example, the Navy concluded, without adequate review and documentation, that the allegation on ripout and rework did not have merit.

Despite the shortcomings in the Navy's investigation, the government will recoup an estimated \$3.2 million as a result of the allegations.

- Two long-standing contract disputes in the cruiser program have been resolved, leading to about \$2.3 million in payments by Bath Iron Works to the Navy.
- Improper labor time charges on the destroyer contract were estimated at \$2.5 million, meaning the Navy will recoup about \$500,000 because of cost-sharing provisions.
- The Defense Contract Audit Agency's findings of inaccurate cost data on the contract modification led to a negotiated settlement of \$384,000.

Full Extent of Improper Charges on the Destroyer Contracts Cannot Be Determined

Even though the Navy estimated that improper charges amounted to \$2.5 million on the destroyer contracts, GAO believes the full extent of the problem will never be known. Records were not maintained in sufficient detail to accurately audit whether labor charges were proper. Bath Iron Works' engineering department personnel do not charge labor hours to the preparation of an identifiable work product such as a specific engineering drawing. Instead, labor charges are made against a particular contract. The limited data significantly impaired the scope of a joint Navy/Defense Contract Audit Agency/Bath Iron Works audit and required assumptions that were inherently subject to question, thereby undermining conclusions about the amount of proper or improper charges. Moreover, Bath Iron Works' instructions on which contracts to charge labor costs were complex and contributed to problems in assessing improper charges.

Restructuring of Destroyer Contract Not Supported by Cost Data

The Defense Contract Audit Agency found that inaccurate cost data supported the September 1989 contract modification that dealt with specific technical issues. Another major part of the modification, accounting for \$37 million of the \$71 million potential modification cost, dealt with a restructuring of the contract. The restructuring combined the design and construction parts of the contract, raised the ceiling price, and changed the cost-sharing ratio between Bath Iron Works and the Navy. The net effect of these changes was to eliminate a potential loss the contractor faced on the original fixed-price contract terms. The restructuring was not supported with cost data. GAO believes, without adequate documentation, there are serious questions as to whether the decision to restructure the contract was justified.

Ineffective Navy Oversight of Contracts at Bath Iron Works

GAO believes that the primary cause of problems disclosed in the review of the allegations was inadequate Navy oversight of contracts at Bath Iron Works. Most importantly, concerning labor charges, the Navy allowed a system to exist with minimum data on contract charges, despite a work environment in which engineering department employees work concurrently on both fixed-price incentive and cost-reimbursable contracts. At a minimum, under these circumstances, the Navy should have increased its monitoring activities of contract charges when the cost-reimbursable lead yard services contract was awarded. Furthermore, the Navy did not resolve internal control issues raised by the Defense Contract Audit Agency related to proper labor charges for production workers.

GAO also found other examples of poor Navy oversight of contracts at Bath Iron Works. The Navy (1) allowed contractual disputes in the cruiser program to go unresolved for over 2 years and (2) maintained no data on what ripout and rework, if any, was actually incurred in the construction of cruisers.

Recommendations

Responsibility to substantiate proper contract charges rests with Bath Iron Works, and responsibility to ensure compliance through appropriate oversight activities rests with the Navy. GAO believes that the stewardship of government funds requires the Navy to seek improvements in the way Bath Iron Works charges costs to contracts and the way it oversees Bath Iron Works' contract activities.

Because GAO's review focused on the Navy's actions on specific allegations, GAO did not perform sufficient work to enable it to recommend specific methods for improving data on contract charges. Nevertheless, GAO believes that improvements are needed and recommends that the Secretary of the Navy, in conjunction with the Defense Contract Audit Agency and Bath Iron Works, provide improved controls over contract charges. GAO also recommends that the Secretary of the Navy review and strengthen oversight activities at Bath Iron Works through appropriate measures such as increased monitoring activities, prompt attention to contract issues, and improvements in internal controls.

Agency Comments

As requested, GAO did not obtain official comments from the Department of Defense on a draft of this report. However, GAO discussed its findings with Navy and Bath Iron Works officials and their comments have been incorporated where appropriate.

Contents

Executive Summary	2
Chapter 1	8
Introduction	
BIW Contracts for Cruisers and Destroyers	8
Engineering Services on Construction and Services Contracts	9
Navy's Award and Oversight of Contracts	9
Anonymous Allegations	10
Objectives, Scope, and Methodology	10
Chapter 2	12
Cruiser Program: Contractual Issues and Improper Charges	12
Contractual Dispute Involving Ship Construction Problems	12
Duplicate Scope of Work	14
Navy, DCAA, and BIW Identified Improper Charging in the Cruiser Program	15
Chapter 3	16
Cruiser Ripout and Rework: Insufficient Data to Confirm or Refute the Allegations	16
Construction Changes Relating to Anti-Air Warfare and External Communications	16
Navy's Review of the Allegation on Ripout and Rework	17
Navy Payments for Ripout and Rework	18
Lack of Records Showing the Extent of Ripout and Rework	19
Chapter 4	21
Destroyer Program: Insufficient Data to Establish the Extent of Improper Charges	21
Why Proper Charges Are Important	21
Navy's Review of Allegation	21
Improper Charges Also Found on Subcontract With Gibbs & Cox	23
Problems With Charging Instructions	24
Limited Data on Contract Charges	25
Conclusions and Recommendation	28
Chapter 5	29
Issues Relating to the Destroyer Contract Modification	29
Navy and BIW Modify DDG-51 Destroyer Contract	29
Navy and DCAA Review Labor Rates for the Contract Modification	30
Contract Restructuring	32
Conclusions	35

Chapter 6		37
The Navy's Review of the Allegations and Its Oversight of Contracts at BIW		37
Inadequate Navy Review of the Allegations		37
Need for Better Controls and Oversight at BIW		40
Conclusions and Recommendation		42
Appendix	Appendix I: Major Contributors to This Report	44

Abbreviations

BIW	Bath Iron Works Corporation
DCAA	Defense Contract Audit Agency
GAO	General Accounting Office
SUPSHIP	Office of the Supervisor of Shipbuilding

Introduction

The Bath Iron Works Corporation (BIW), Bath, Maine, has been awarded U.S. Navy construction contracts for CG-47 Ticonderoga class cruisers and DDG-51 Arleigh Burke class destroyers as well as services contracts in which BIW provides engineering and other services for the respective ship classes. In October 1989, we received allegations from an anonymous source that BIW improperly charged labor hours to services contracts when it should have charged them to construction contracts. Also, the allegations involved overcharging for certain changes in construction contracts.

BIW Contracts for Cruisers and Destroyers

BIW has been a contractor in two major Navy shipbuilding programs: the CG-47 Ticonderoga class cruiser and the DDG-51 Arleigh Burke class destroyer. As a follow shipbuilder,¹ BIW has received contracts to construct eight cruisers. The Navy also awarded BIW a follow yard services contract in January 1988 to provide services that pertain to the overall cruiser program. Except for the first cruiser, the construction contracts were fixed-price incentive contracts, and the follow yard services contract was a cost-plus-fixed-fee contract. BIW has delivered five cruisers and has three others under construction.

In April 1985, the Navy awarded BIW the contract for the design and construction of the lead ship (DDG-51) in the destroyer program. Since then, the Navy has awarded BIW four construction contracts for eight additional destroyers. It also awarded BIW lead yard services contracts, the first in June 1987, to provide services that pertain to the overall destroyer program. The construction contracts were fixed-price incentive, and the lead yard services contracts were cost-plus-award-fee. The lead ship was delivered on April 29, 1991, and three other destroyers are under construction.

On the fixed-price incentive contracts, the Navy and BIW share costs depending on the level of costs incurred under the contract. The Navy is responsible for costs incurred up to the contract target cost, or estimated contract cost. The Navy and BIW share costs over the target cost up to the ceiling price, which is the maximum contract price the Navy will pay, including profit, under the contract. For example, a contract with a 50/50 sharing ratio means that the Navy is responsible for the

¹For the cruiser and destroyer programs, the lead shipbuilder designed and constructed the first ship of the class, and the Navy later held competition for a second source to construct the ships (follow shipbuilder or follow yard). For cruisers, Ingalls Shipbuilding, Pascagoula, Mississippi, was the lead shipbuilder and BIW was the follow shipbuilder. Conversely, for destroyers, BIW was the lead shipbuilder and Ingalls Shipbuilding was the follow shipbuilder.

target cost and 50 percent of costs between target cost and the ceiling price. BIW is responsible for 50 percent of the costs between the target cost and ceiling price and all costs above the ceiling. The cost sharing ratios vary among contracts.

On the cost-plus-award-fee contract, the Navy pays costs justified under the terms of the contract (cost-reimbursable), a base fee, and another fee that is determined based on the contractor's performance.

Engineering Services on Construction and Services Contracts

BIW is responsible for engineering services under both the construction and services contracts for the cruiser and destroyer programs. On the destroyer program, BIW designed the lead ship under the lead ship contract and performed design and other engineering-related services for the class of ships under the lead yard services contract. On the cruiser program, BIW performed services associated with ship construction problems, as well as other work related to the cruiser class of ships under the follow yard services contract. Also, Gibbs & Cox, BIW's design subcontractor, provided substantial amounts of design and engineering services under the destroyer contracts.

To avoid mischarges within the engineering department, close attention is needed to accurately account for contract charges. An engineering department employee, on a daily basis, can perform tasks on both construction contracts and services contracts. In general, the services contracts are cost-reimbursable and the construction contracts are fixed-price incentive. If costs that should be charged to fixed-price contracts are charged instead to cost-reimbursable contracts, the Navy would pay more than it should.

Navy's Award and Oversight of Contracts

The Naval Sea Systems Command is responsible for acquisition of ships and the oversight of contracts. The Command's Contracts Directorate, and specifically the procuring contracting officer, are responsible for the award of the ship construction contracts and major changes to these contracts. The Command's Office of the Supervisor of Shipbuilding (SUPSHIP/Bath), Bath, Maine, is responsible for overseeing BIW's performance under the various contracts and for negotiating certain contract changes. The Defense Contract Audit Agency (DCAA) office in Bath provides audit and support services to assist the Command's headquarters and SUPSHIP/Bath in exercising their oversight responsibilities.

Anonymous Allegations

We received the allegations from an anonymous source through GAO's "hotline," which provides a means for people to disclose potential fraud, waste, or abuse of government funds. The Navy received similar allegations over its hotline. The anonymous source alleged that a BIW official was responsible for intentionally mischarging contracts and for inappropriate actions regarding other contractual matters. The allegations of mischarging generally involved design and engineering labor charges, which have been extensive over the past several years. The allegations are summarized as follows:

Allegation #1—Cruiser Program Mischarges: BIW incorrectly charged labor hours to the cruiser follow yard services contract to mitigate cost overruns on several cruiser construction contracts. The anonymous source alleged that the company refused to agree to contract adjustments associated with the investigation of ship construction problems. This allegation is discussed in chapter 2.

Allegation #2—Ripout and Rework on Cruisers: BIW overcharged the Navy on cruiser construction contracts by including production labor hours for ripout and rework that did not occur. This allegation is discussed in chapter 3.

Allegation #3—Destroyer Program Mischarges: BIW incorrectly charged labor hours to the destroyer lead yard services contract to mitigate cost overruns on the DDG-51 lead ship construction contract. This allegation is discussed in chapter 4.

Allegation #4—Destroyer Contract Modification: In September 1989, the Navy and BIW modified the lead ship destroyer contract, which resolved outstanding contractual issues and restructured the contract to increase the Navy's share of costs. The anonymous source questioned the pricing and negotiation of the modification and specifically alleged that BIW did not provide the Navy with accurate data during negotiations. This allegation is discussed in chapter 5.

Objectives, Scope, and Methodology

We began our review of the allegations involving U.S. Navy shipbuilding contracts at BIW in November 1989. In December 1989, the Chairman, Subcommittee on Investigations, House Committee on Energy and Commerce, requested that we monitor the Navy's work to ensure that the allegations were adequately reviewed. The Navy's review, which began in October 1989, was essentially complete at the conclusion of our review in April 1991.

In our review, we performed audit work to the extent necessary to assess the adequacy of the Navy's review. Our work did not include a detailed independent review of BIW records to identify improper contract charges because of (1) the ongoing Navy review and (2) the data problems discussed in chapter 4 of this report.

We interviewed representatives of, and obtained data at, the Naval Sea Systems Command; the Inspector General of the Department of Defense; the Naval Inspector General; SUPSHIP/Bath; BIW; and DCAA (Bath, Maine).

In addition to the audit work discussed in this report, the Chairman of the Subcommittee also asked our Office of Special Investigations to examine whether intentional mischarging was involved on the contracts that we reviewed. We needed access to BIW employees to conduct this investigation. BIW offered to provide unobstructed access to its employees if we withheld discussing our findings with the Subcommittee until the investigation was complete, but this was not agreeable with the Chairman. As a result, our Office of Special Investigations could not conduct the investigation for intentional mischarging.

As the Navy's investigation progressed and DCAA became involved, DCAA referred the areas that our Office of Special Investigations was attempting to investigate to the Naval Investigative Service. We did not assess its investigation.

As requested, we did not obtain official agency comments on this report. However, we discussed our findings with agency and BIW representatives and have incorporated their comments where appropriate.

We conducted our review between November 1989 and April 1991 in accordance with generally accepted government auditing standards.

Cruiser Program: Contractual Issues and Improper Charges

The anonymous source accused BIW of incorrectly charging labor hours to the cruiser services contract to mitigate cost overruns on several construction contracts. According to the allegation, BIW refused to provide contract adjustments associated with the investigation of ship construction problems. In early 1989, prior to the allegation, the Navy and BIW identified this contractual dispute, which was finally resolved in March 1991. A second related contractual issue concerned duplicate work required under separate contracts. This issue, outstanding since January 1988, was resolved in August 1990.

Resolution of these contractual issues resulted in contract adjustments of about \$4.2 million. The Navy will recoup about \$2.2 million because of the cost-sharing provisions in the cruiser construction contracts. In addition to the contractual disputes, about \$248,000 in improper charges were identified in the cruiser program, which resulted in the Navy recouping about \$124,000.

Contractual Dispute Involving Ship Construction Problems

The Navy and BIW disagreed on whether the construction or follow yard services contract should be charged for the investigations that must be made when ship construction problems are identified. The dispute stems from a provision in the follow yard services contract awarded in January 1988.

Problems such as interferences between pipes and ventilation duct work occur during ship construction. Engineering department employees located near the construction site are called in to investigate such problems and prepare design correction reports that describe the problem. The Navy believes that the investigation of the construction problems, when determined to be BIW-responsible,¹ should be charged to the construction contracts. Secondly, the Navy believes that the investigation of construction problems, when determined to be Navy-responsible but only minor in nature, should also be charged to the construction contracts. BIW believes, however, that the investigation of all construction problems should be charged to the follow yard services contract. BIW representatives objected to the Navy's position by citing the wording contained in the follow yard services contract, which states

¹ As part of the investigation, the engineer determines whether the construction problem is attributable to a Navy design error (Navy-responsible) or attributable to BIW design or construction errors (BIW-responsible).

that BIW will "provide engineering effort required to develop and incorporate design solutions to drawing problems identified by the contractor." This provision, they said, allows them to charge such investigations to the follow yard services contract.

BIW representatives also said that this provision was similar to a provision in the CG-51 cruiser construction contract, which authorized BIW to charge the investigation of drawing errors to the follow yard services contract regardless of Navy or BIW responsibility. In addition, BIW issued charging instructions in April 1988 that indicated its intention of charging the investigations to the follow yard services contract. BIW believes that the Navy's 2-year acceptance of these charging instructions validates its position.

Navy representatives said that BIW has incorrectly interpreted the contract language, taking it out of context. They stated that, because the language is under the section entitled "Navy change control process," it is unrelated to BIW-responsible construction problems.

As a result of a contractual settlement on a request for equitable adjustment in 1987, contracts were modified to include language that the Navy believes supports its position, according to Navy representatives. Moreover, the modifications also defined "minor" and included language that the Navy says suggests investigations of "minor" Navy-responsible design changes are chargeable to the construction contracts. In general, the Navy believes that it has prepaid for these services as part of the price for the construction contract.

Navy representatives dispute BIW's assertion that the Navy had accepted the company's charging instructions for over 2 years. They maintain that the Navy never approved the charging instructions, and no documentation exists that would establish that Navy representatives ever agreed to allow the company to charge the investigation of BIW-responsible construction problems under the CG-51 contract. According to Navy representatives, only the investigation of construction problems determined to be Navy-responsible was allowable under the CG-51 contract.

As part of the current review, in May 1990, SUPSHIP/Bath provided written notification to BIW of the Navy's intent to disallow about \$3.1 million in estimated costs under the follow yard services contract related to the investigation of BIW-responsible construction problems. In September 1990, BIW submitted a proposal of \$2.1 million to settle the

dispute. The proposal was based on the premise that BIW should pay for BIW-responsible construction problems and the Navy should pay for Navy-responsible defects. The matter was resolved in March 1991, and BIW transferred about \$2.4 million in costs from the follow yard services contract to the construction contracts. According to a SUPSHIP/Bath representative, the agreement resulted in Navy savings of about \$1.2 million because of 50/50 cost-sharing provisions between the Navy and BIW in the construction contracts.

Duplicate Scope of Work

The second contractual issue involves an overlap in responsibilities under certain cruiser construction contracts and the follow yard services contract. The construction and services contracts contain duplicate scope of work descriptions related to areas such as (1) establishing and maintaining an office in Washington, D.C., for liaison activities between BIW, the Navy, and Ingalls Shipbuilding and (2) maintaining drawings and specifications for the cruiser class of ships. The matter was resolved as part of the current investigation in August 1990 when the Navy and BIW agreed to price reductions in cruiser construction contracts.

Although the Navy was aware of the problem with the duplicate scope of work, it awarded the follow yard services contract without resolving the issue. In September 1987, BIW submitted a price proposal to reduce the price of the construction contracts for the value of the duplicate scope. At the request of the Naval Sea Systems Command, BIW revised the proposal three times, but the parties reached no settlement before the Navy awarded the follow yard services contract. The Command's procuring contracting officer decided to award the follow yard services contract in January 1988 and later negotiate the credits to the construction contracts. Command representatives said that the final settlement on the duplicate scope issue was believed to be a routine matter, so the procuring contracting officer negotiated the follow yard services contract without resolving the problem.

In January 1989, the Command authorized SUPSHIP/Bath to negotiate the resolution of the matter. However, it was not until August 1990 (subsequent to the allegation) that the Navy and BIW agreed to reduce the target prices on several cruiser construction contracts by about \$1.8 million. According to SUPSHIP/Bath representatives, this agreement resulted in a Navy savings of about \$1 million in cost and profit because of the cost-sharing provisions between the Navy and BIW in the construction contracts. They attributed the delay in resolving the issue to the complexity of the negotiations created by negotiating this issue along

with the disagreement over charges for the ship construction problems investigation.

Navy, DCAA, and BIW Identified Improper Charging in the Cruiser Program

Unlike the investigation of ship construction problems in which the Navy and BIW disagreed on who should pay to resolve the problems, the Navy and BIW agree that the preparation of drawing revisions and revision notices should be charged to the construction contracts if the design problem is BIW-responsible. Following the anonymous allegations, the Navy, DCAA, and BIW reviewed time charges for the preparation of certain drawing revisions and revision notices and identified improper charges amounting to about \$221,000. These results were based on considerable assumptions because of existing data on contract charges. (Similar problems affected the destroyer program, as discussed in chapter 4). In addition, the Navy identified improper charges of about \$27,000 for the preparation of waivers and deviations, which are documents used by the contractor to request a waiver or deviation from contract specifications. BIW has agreed that these charges were improper and has transferred the charges from the cost-reimbursable services contract to the fixed-price construction contract. As a result, the Navy will recoup about \$124,000.

Cruiser Ripout and Rework: Insufficient Data to Confirm or Refute the Allegations

For certain cruiser construction changes, the anonymous source alleged, among other things, that the Navy paid for ripout and rework that did not occur. After a limited review, the Navy dismissed the allegation, having concluded it had no merit. However, we believe that insufficient information is available to confirm or refute the allegation. For these changes, it is not possible to determine the amount that the Navy paid for ripout and rework or the extent that ripout and rework was actually performed.

Construction Changes Relating to Anti-Air Warfare and External Communications

After contract award, the Navy often requires changes to the planned construction of the ship. The principal construction changes cited in the allegation were anti-air warfare and external communications, two of the largest modifications implemented during the cruiser construction program. These changes involved more than 500 revisions (revision notices) to the ship's drawings. The anti-air warfare change upgraded the radar capabilities, and the external communications change required installation of improved cable and wiring throughout the ship.

Ingalls Shipbuilding, the lead shipbuilder in the cruiser program, provided BIW with the supporting design data (drawings and other engineering data) required to implement both changes. Initially, the Navy authorized BIW to begin work on these changes with maximum-priced modifications to avoid schedule delays. A maximum-priced modification sets a not-to-exceed price for the change; the exact price is negotiated later. Subsequently, BIW estimated the cost of implementing changes, prepared price proposals based on these estimates, and submitted these proposals to the Navy. The Navy and BIW eventually negotiated the price for the proposal.

The Navy authorized BIW to begin start-up work on the anti-air warfare change in November 1984 and authorized about \$20 million under a maximum-priced contract modification in December 1987. In October 1988, BIW submitted an anti-air warfare proposal for \$12.5 million, which was negotiated down to about \$10 million in June 1989. For external communications, the Navy signed a maximum-priced modification for \$11.5 million in December 1987. BIW submitted an external communications proposal for \$3.7 million in October 1988, which was negotiated down to about \$2.8 million in May 1989.

According to SUPSHIP/Bath representatives, the transmission of the design data from Ingalls Shipbuilding to BIW was slow and sporadic

because the designs for these changes were still evolving and were frequently revised. For several years, BIW delayed the preparation of price proposals until it received enough design data from Ingalls Shipbuilding to estimate the costs involved. Consequently, most of the construction had been completed when BIW began to develop the price proposals.

Ripout occurs when previously installed materials are removed to accomplish a construction change; rework occurs when workers must repair the area affected by a ripout. The amount of ripout and rework depends on the timing of the change. If the change work is performed within the time frame for the original scheduled construction activity, little or no ripout and rework is necessary. Conversely, if the change is made after this period, considerable ripout and rework may be required, depending on the extent of the change.

Navy's Review of the Allegation on Ripout and Rework

To provide greater independence and credibility in its investigation on the allegation, SUPSHIP/Bath requested assistance from the SUPSHIP office in Groton, Connecticut. SUPSHIP/Groton assigned an experienced contract administrator who manages a major shipbuilding program. Over a 2-week period at SUPSHIP/Bath, the reviewer interviewed SUPSHIP/Bath and BIW personnel, examined contract documents, and reviewed production and other records. He concluded that the allegation was unsubstantiated. The Naval Inspector General conducted a brief review and accepted the Navy reviewer's conclusions without performing additional work.

The reviewer tried to determine whether the ripout and rework was actually performed. He reviewed 13 of the 500 revision notices processed during the anti-air warfare and external communications changes by comparing the ripout and rework from the revision notices with BIW production and scheduling records. These records were the detailed planning and production records used by the contractor to schedule and perform the tasks required to build a ship. The reviewer attempted to reconstruct the situation using the production and scheduling records, even though they were not intended for this purpose. Based on this, he rendered an opinion on whether ripout and rework was actually performed.

Based on this review, he concluded that 1 of the 13 revision notices appeared to include unnecessary ripout and rework, though it was impossible to determine for sure whether the ripout and rework actually occurred. He did not select additional revision notices for review,

despite the findings in this one case, yet concluded that there was no evidence BIW had charged the Navy for ripout and rework that had not occurred.

The anonymous source also alleged that BIW held up design documents for these changes over long periods, causing unnecessary ripout and rework. To determine whether design documents were transmitted to the production departments in a timely manner, the Navy reviewer chose a nonrandom sample of 59 revisions from 3 changes not mentioned in the allegation. He compared receipt dates for design data from Ingalls Shipbuilding with the dates that the revisions were issued to the BIW production departments. The Navy reviewer was unable to draw a conclusion that would indicate deliberate hold up of design data.

The anonymous source also alleged that BIW overcharged the Navy for class II engineering change notices, which were minor changes generated by the lead shipbuilder (Ingalls Shipbuilding) to accommodate prior major changes. The Navy reviewer said he did not examine class II engineering change notices because a SUPSHIP/Bath representative told him that there was little or no ripout and rework associated with these changes. However, other SUPSHIP/Bath and BIW representatives told us that, as a rough estimate, \$10 million to \$15 million in class II engineering change notices were processed; about 25 to 50 percent of this amount was for ripout and rework. They also said that considerable time and effort would be required to identify the total value of the class II engineering change notices and the ripout and rework associated with them.

We believe that the Navy's review of these allegations had deficiencies. For example, the Navy reviewer developed conclusions based on inadequate samples and placed reliance on unsubstantiated testimonial evidence. His supporting evidence did not contain any records of interviews and lacked essential documents provided by BIW but later returned to them.

Navy Payments for Ripout and Rework

Navy payments for ripout and rework were indeterminable for the anti-air warfare and external communications changes. BIW did not specifically identify the amount of ripout and rework required to complete each change in its proposals. Moreover, the prices for these changes were negotiated on a bottom-line basis. In a bottom-line settlement, individual cost elements, such as labor hours and overhead are not negotiated. Therefore, individual cost elements are left undefined. There is no

record, or final estimate, of what the Navy paid for cost elements such as ripout and rework.

Lack of Records Showing the Extent of Ripout and Rework

BIW does not collect actual cost data for contract changes, either in total or separately by individual cost elements such as ripout and rework. It estimated the costs of anti-air warfare and external communications based on production and scheduling records. According to SUPSHIP/Bath representatives, they have occasionally directed BIW to collect cost data for small changes, but did not for anti-air warfare and external communications because of their size.

BIW and SUPSHIP/Bath representatives said that it is not practical to collect data on the cost of construction changes (or ripout and rework) because change work cannot be separated from regular ongoing work. For example, the painter of a ship's compartment would have difficulty separating the costs associated with the contract change occurring in the compartment (such as the relocation of ventilation equipment) from the overall construction of the compartment that would have been done regardless of the change. In addition, BIW and SUPSHIP/Bath representatives believe the cost of collecting this data would outweigh its benefit.

BIW representatives believe that only minimal ripout and rework occurred in connection with the anti-air warfare and external communications changes. They stated that ripout and rework were minimized because the change work was integrated with little disruption in the regularly scheduled construction. Although detailed supporting data does not exist, they estimated that ripout and rework on the changes were very small, about \$200,000, for contract changes negotiated at about \$13 million. Thus, the BIW representatives believe that the allegation has no merit.

Neither BIW nor SUPSHIP/Bath had construction records showing the extent to which ripout and rework had actually occurred. The Navy monitors the physical progress of the ship's construction to determine what progress payments should be made to BIW. However, the SUPSHIP/Bath representatives in charge of this activity told us they have four people observing the company's progress and these employees are not expected to collect the detailed data required to evaluate change proposals. In our opinion, the lack of data is a weakness in the Navy's oversight of contracts.

According to DCAA representatives, DCAA has been concerned for several years that BIW does not collect actual cost data on individual contract changes as a routine matter. They said that the data could be used to assist DCAA and the Navy in evaluating costs for various BIW proposals.

Destroyer Program: Insufficient Data to Establish the Extent of Improper Charges

The anonymous source alleged that BIW incorrectly charged engineering labor hours to the destroyer services contract rather than to the destroyer construction contract. A joint review of the allegation by the Navy, DCAA, and BIW indicated that improper charges did occur, which are estimated at about \$2.5 million.

We believe an accurate assessment of improper charges will never be known because of the complexity and ambiguity of the time charging instructions and because BIW maintains only limited data on contract charges. We are concerned that the Navy allowed a work environment to exist at BIW where time charges were not carefully compiled or independently checked. Although BIW has agreed to repay the Navy for these estimated improper charges, the Navy and BIW need to improve their controls over time charges to prevent recurrences of the problem.

Why Proper Charges Are Important

To understand improper charges, it is important to understand the differences in requirements for the lead ship construction contract and the lead yard services contract. Under the April 1985 lead ship contract, BIW was responsible for preparing the construction drawings for the DDG-51 lead ship. Under the June 1987 lead yard services contract, BIW assumed responsibility for design work related to the destroyer class of ships once the lead ship design was complete. Because the lead ship contract was fixed-price incentive and the lead yard services contract was cost-plus-award-fee, proper charging of labor hours is important.

Labor hour mischarges should be determined by comparing, for specific tasks, which contract the employee should have charged (based on contract provisions and charging instructions) with the contract the employee did charge.

Navy's Review of Allegation

After receiving the allegations, SUPSHIP/Bath representatives, assisted by DCAA, began their review. The investigation included, among other things, a sample of time charges for drawing revisions. Based on this review, mischarging was cited in the Naval Inspector General's May 1990 report. The report attributed the mischarging to several causes, including erroneous BIW charging instructions to employees and ambiguities in contract terms and conditions.

Meanwhile, BIW reported the results of its own internal audit. BIW identified instances of improper charges by designers and supervisors, but found no evidence that it was intentional. According to the company's

April 1990 report, the improper charges were due to mistaken interpretations of what each contract required. Some workers did not receive charging instructions, and others did not understand attempts by BIW managers to clarify the instructions. The report did not provide a dollar estimate of the extent of improper charges, but contended that it was unlikely that charging errors were significant.

In April 1990, representatives of SUPSHIP/Bath, DCAA, and BIW began a joint audit of alleged improper charges. The audit expanded on SUPSHIP/Bath's prior work and reviewed charges involving (1) drawing revisions, (2) design correction requests, (3) revision notices, and (4) supervision charges. The review for improper charges on a drawing had to be limited to its revisions, since prior to the first revision on each drawing, data does not exist to determine which employees worked on the drawing and when the work was done.

The joint audit team made certain assumptions because of limitations in BIW's data on cost charges. It established error rates from a review of samples, applied the error rates to the universe of various tasks, such as revision notices, and estimated improper charges based on average hours estimated to complete the various tasks. DCAA prepared audit reports that summarized the results of the joint audit. In these reports, DCAA qualified the results of the audit based on the assumptions.

In a series of reports ending in February 1991, the joint audit estimated that Bath Iron Works charged \$2.5 million to the lead yard services contract that it should have charged to the destroyer lead ship construction contract. Based on this amount, the Navy will recoup about \$500,000 because of the contract's 80 percent/20 percent cost-sharing provisions. This excludes improper charges associated with BIW's subcontract with Gibbs & Cox, which BIW identified before the receipt of the allegations.

BIW participated in the audit, according to SUPSHIP/Bath representatives, because of the complexity of BIW's labor charging system and SUPSHIP/Bath did not want to have charges transferred between contracts without BIW's participation and concurrence in the process. According to BIW representatives, the company participated in the joint review to prevent errors if SUPSHIP/Bath and DCAA conducted the review alone.

Improper Charges Also Found on Subcontract With Gibbs & Cox

Prior to the investigation of the allegations, BIW had identified additional mischarging that occurred on its subcontracts with Gibbs & Cox. Gibbs & Cox is responsible for providing engineering services in the destroyer subcontracts depending on the nature of the work.

Based on discussions with Gibbs & Cox concerning an increase in work on a production support subcontract, BIW subcontract administration personnel questioned charges for the subcontract. After discussions and meetings concerning potential mischarging, BIW issued charging instructions to Gibbs & Cox in August 1989 for the lead yard services contract. In October 1989, based on the charging instructions, Gibbs & Cox's identified about 44,200 manhours that employees charged between February and September 1989 to a lead yard services subcontract that should have been charged to the production support subcontract.

In December 1989, Gibbs & Cox increased the estimate of mischarging to about 47,000 man hours. In January 1990, after an in-depth review, BIW transferred about \$1.5 million from its lead yard services prime contract with the Navy to its lead ship contract. This transfer decreased the Navy's payments to BIW by about \$300,000 because of the contracts' cost-sharing provisions.

The improper charges related to the resolution of ship construction problems. As BIW engineers reviewed problems that occurred during construction of the ship, it often called in Gibbs & Cox to help resolve these problems. Gibbs & Cox would investigate the construction problem, assist in developing engineering solutions, prepare the revision notices to correct the drawings, and correct the engineering drawings for the class of ships. According to Gibbs & Cox representatives, the improper charges occurred because Gibbs & Cox charged the development of engineering solutions and the preparation of the revision notices to the lead yard services subcontract rather than the production support subcontract.

Gibbs & Cox representatives maintained that the BIW charging instructions issued in August 1989 were in conflict with previous charging instructions orally provided by senior BIW management. The improper charges did not become apparent until after Gibbs and Cox received the August 1989 written charging instructions. Because of the potential for fraud or unlawful activity in this matter, DCAA referred it to the Naval Investigative Service in late January 1990. The Naval Investigative Service's investigation did not disclose any evidence that BIW's senior

management issued verbal instructions that led to intentional mischarging.

Problems With Charging Instructions

Charging instructions, based on contract requirements, form the basis for the specific contracts an employee should charge for specific activities. Accurate and clear charging instructions are essential for proper contract charges. This is especially important in BIW's destroyer work, where employees work side by side and intermittently on both fixed price and cost reimbursable contracts. Although the Navy had approved BIW's charging instructions for the lead yard services contract on the destroyer program, these instructions were complex and contributed to problems in assessing improper charges.

BIW developed charging instructions for the lead yard services contract with input from its various departments. According to BIW representatives, charges to the lead yard services contract were straightforward during the first year of implementation. However, charging questions arose in early 1988, and the company formed a working group from various departments to review the questions. Considerable debate occurred over the meaning of the language contained in the contract. In September 1988, BIW issued its charging instructions, and in February 1989, the Navy's contracting officer approved it.

Once the allegations made against BIW came under review, however, differences between the Navy and BIW interpretations of the charging instructions emerged. One important charging issue involved differentiating between the time that a drawing transitions from a lead ship drawing (chargeable to the lead ship contract) to a DDG-51 class drawing (chargeable to the lead yard services contract). Also, the Navy and BIW identified circumstances not covered by the charging instructions in which they disagreed on proper charging.

For example, BIW and the Navy disagreed on the amount of charges on certain minor changes identified during the construction process. BIW believed that some minor changes would never require a formal revision to the drawing, or the revision could be accomplished much later. Because these drawing revisions were revised immediately to accommodate the follow shipbuilder in its construction of the follow ship, BIW believed that charges for incorporating these minor revisions in the drawings should be made to the lead yard services contract. However, the Navy believed that, because the revision is necessary to correct the lead ship, then the charge should be to the lead ship contract. According

to both the SUPSHIP/Bath and BIW representatives, this situation is not covered by the charging instructions or any other written documents.

The charging instructions by their nature can be confusing to the designer. One example involves revisions occurring after the drawing has been issued to the production department. If the development of a revision notice addresses a problem with the original lead ship design, then that charge should be to the construction contract, but the work of putting the information from the revision notice onto the drawing (drawing maintenance) should be charged to the lead yard services contract. If the revision only involves follow ships, then the revision notice development and drawing maintenance charges both belong to the lead yard services contract.

Limited Data on Contract Charges

BIW records were not maintained in sufficient detail to accurately audit whether labor charges were proper. BIW engineering department personnel do not charge labor hours to the preparation of an identifiable work product such as a specific drawing. Instead, labor charges are made against a particular contract, and engineering personnel may work on different contracts, even during the same day.

The joint audit included a review of drawing revisions, revision notices, and design correction requests. A drawing contains some data on each of its revisions, including the date of completion of the revision, the initials of the draftsmen and supervisors, and a brief description of the change. Similar data exists on design correction requests and revision notices. By making certain assumptions, this type of data was used as a basis for the joint audit.

The joint team needed to make considerable assumptions and judgments in its methodologies. For example, the employee's time required to complete a task, such as a revision notice, had to be estimated. Also, although a document contained a date, judgments were made as to the length of the period the document was worked on. Most importantly, if the employee charged a reasonable amount of time to the proper contract during the period, then an assumption was made that the time charged was for the specific task. Further, based on samples, projections were made on the total amount of improper charges in the program.

Relationship to Cost Control and Accounting Systems

Contract cost charges are accumulated for government contracts through the cost and schedule control system. A series of cost reports, including the cost performance report, are generated from this management information system. According to DCAA representatives, this system provides the costs that are incurred under the contracts, including labor charges, but is not designed to identify improper contract charges. The system may show trends in the cost charges that could become the basis for reviewing cost charges.

BIW's accounting system must comply with cost accounting standards prescribed by the Cost Accounting Standards Board. According to DCAA, DCAA has some outstanding issues regarding BIW compliance with the cost accounting standards, but these issues are considered insignificant. DCAA representatives further said that improper charging often involves an incorrect decision by an employee to charge one contract over another contract, which is unrelated to the accounting system that is in place.

Improper Charges on Supervision—An Example of Difficulty in Assessing Improper Charges

SUPSHIP/Bath, DCAA, and BIW agreed that improper charges in supervision occurred because a memorandum with erroneous charging instructions circulated within BIW. Four methodologies have been used since the receipt of the allegations to estimate the extent of improper charges. The methodologies used considerable assumptions and judgments and demonstrate the difficulty in assessing the extent of improper charges with the existing data at BIW.

In August 1988, a BIW vice president in the engineering department issued a brief memorandum that was interpreted to mean that, under certain circumstances, supervisors should charge 100 percent of their time to the lead yard services (cost-reimbursable) contract. In October 1988, the memorandum was withdrawn and supervisors were instructed to charge labor hours according to charging instructions issued by BIW in September 1988. These instructions direct supervisors to discretely charge each contract in accordance with the work performed.

According to BIW representatives, the August memorandum resulted in confusion and improper charges by supervisors in the engineering department. Although the memorandum was withdrawn, many supervisors continued to charge all their time to the lead yard services contract. Because of the potential for fraud or unlawful activity, DCAA referred the matter to the Naval Investigative Service in late January 1990. The investigation did not disclose any intentional mischarging.

The four methodologies used to try to assess the extent of mischarging are described below.

First Audit Methodology—SUPSHIP/Bath representatives developed a methodology in their preliminary review to assess whether mischarging had occurred. They reviewed a sample of drawing revisions for supervisors' labor charges based on the date the supervisor's signature appeared on a drawing revision. If the charges for the revision should have been to the lead ship contract, but the supervisor charged all time for the day to the lead yard services contract, then a mischarge was considered to exist. According to SUPSHIP/Bath representatives, 19 of 21 sample cases were improperly charged. SUPSHIP/Bath representatives estimated the amount of improper charges was between \$500,000 and \$700,000, based on the trends in the number of supervisors charging 100 percent of their time to the lead yard services contract.

Second Audit Methodology—BIW performed its own internal audit of supervision charges. It identified employees with large blocks of time charged to lead yard services, estimated the percentage of time split among contracts for each of these employees, and calculated how much time was incorrectly charged based on the actual number of hours charged. BIW estimated that 4,268 hours, or about \$116,000, were improperly charged by supervisors. The percentage of time split among contracts was a judgmental estimate not based on factual data.

Third Audit Methodology—The joint audit team estimated the amount of improper charges for supervision based on the assumption that supervisory time charges should relate directly to the work produced by employees under their supervision. SUPSHIP/Bath (1) estimated the total work for the department and the percentages of time (using certain judgmental weighing factors) between lead ship and lead yard services contracts and (2) compared the resulting data with actual time charges for the department. The estimate of improper charges was between \$400,000 and \$500,000. BIW did not concur with certain SUPSHIP/Bath assumptions, and the joint audit team discarded the analysis.

Fourth Audit Methodology—The joint audit team decided that the extent of improper charges could only be determined by reviewing specific work documents and comparing them with actual labor charges. Certain assumptions had to be used because BIW's labor system does not identify labor charges to a specific work product. Labor charges were reviewed for a 3-day period: the day before the supervisor's approval of the document, the day of the approval, and the day after the approval.

Any labor charges made to the proper contract during the 3-day period was considered to be a correct charge, even though no method exists to determine whether the charge was for the supervision of the specific document. SUPSHIP/Bath estimated an average of 1 hour of supervision to complete a review. On the basis of the error rates in a sample of 100 work products, the joint team projected improper charges of about \$293,000. On the basis of this amount, the Navy could recoup about \$58,600, because of the cost-sharing provisions in the contract.

BIW Comments on Data Requirements on Contract Charges

BIW representatives said the Navy has not required more detailed data on contract charges, and the nature of the shipbuilding work does not lend itself to such record-keeping. A requirement to record labor charges to specific documents, such as a drawing or a revision notice, would create a severe administrative burden. They believe that such a requirement would not be cost-effective.

Conclusions and Recommendation

Although the Navy's review stemming from the allegation resulted in estimated improper charging on the destroyer lead ship contract of about \$2.5 million, we believe the true extent of improper charging will never be known. This is because BIW's charging instructions are complex and ambiguous and its time charge system provides only limited data.

We believe the Navy in these circumstances needs to take action to ensure that the government's interests are adequately protected. In addition to the improper engineering charges identified in the Navy's review and the improper charges found at Gibbs & Cox on the destroyer program, DCAA has sought changes for many years in BIW's time charging practices for production workers, but BIW has not modified its system (see ch. 6).

We recommend that the Secretary of the Navy, in conjunction with DCAA and BIW, provide improved controls over BIW's charging system. This would include a combination of better data on contract charges as well as extensive monitoring of contract charges through employee floorchecks.

Issues Relating to the Destroyer Contract Modification

In September 1989, BIW and the Navy negotiated a modification to the DDG-51 contract that could increase the Navy's payments to BIW by as much as \$71.7 million over the expected life of the contract. Part of the modification covered technical issues for which BIW provided detailed cost and pricing data. Another portion of the modification, covering about \$37 million of the increase, restructured the contract to increase the ceiling price and change the cost-sharing provisions. This portion was based on general statements by BIW about the technical difficulty of meeting the contract requirements and was not supported by detailed cost data.

The anonymous source alleged that BIW did not provide the government with accurate data during negotiations of the technical issues. A DCAA review of this allegation performed at the Navy's request resulted in about \$384,000 being returned by BIW.

We believe the more important issue in this modification, however, is the restructuring, which was agreed to by the Navy without detailed supporting cost data. In our January 1990 report, which first reported on this restructuring, we expressed concern that this could serve as a precedent for other shipbuilders having difficulty meeting fixed-price contracts. We continue to be concerned, and we believe the Navy, before approving the modification, should have required sufficient cost data from BIW to assure itself that the cost adjustments in the modification were fair and reasonable.

Navy and BIW Modify DDG-51 Destroyer Contract

Beginning as early as 1987, BIW was experiencing delays and cost growth on the program that led it to seek changes in the DDG-51 contract. BIW believed that the fixed-price contract was not a suitable vehicle for designing and constructing a technically sophisticated lead ship in a new destroyer program. According to BIW, too many unknown technical challenges existed to be workable under a fixed-price incentive contract. BIW's Chairman told us that he had asked the Navy to change the contract to cost-reimbursable but had been turned down.

In March 1989, BIW submitted a proposal to modify the contract to resolve some outstanding technical issues and establish a new ceiling price and cost-sharing arrangement. In April 1989, BIW wrote the Navy, stressing its financial difficulties and requesting a special payment of \$12 million to help relieve cash flow shortcomings pending approval of the modification. Even though the Navy did not act on the cash request, it did move ahead to modify the contract. The Navy requested and

received more information from BIW on the technical issues, prepared a prenegotiation position paper, obtained a legal opinion, and entered into negotiations with BIW.

The contract modification was signed on September 15, 1989. It provided BIW about \$3 million less than it requested on the technical issues, and it generally adopted BIW's proposal for the restructured ceiling price and cost-sharing formula.

At the time of the negotiations, BIW was experiencing losses on the contract that were estimated to reach \$41.5 million. The technical adjustments, along with the restructuring changes, would eliminate those losses. The contract modification called for increasing the target cost by \$31 million and target profit by \$3.7 million. In addition, the restructured portion of the contract modification could increase payments to BIW by another \$37 million if the price reaches the new ceiling. The agreement combined the design and construction portions of the contract and set a new ceiling price of about \$530 million for the combined design and construction activities. It also changed the cost-sharing formula for costs incurred between the target and ceiling prices.

The Navy and BIW believed this contract modification represented a fair and reasonable resolution of the contract issues and put the DDG-51 program in a position to produce a high quality ship with no further schedule delays.

Navy and DCAA Review Labor Rates for the Contract Modification

According to the allegation received by the Navy, the anonymous source suggested the Navy review labor and overhead rates for the contract modification. We received a different allegation in which the anonymous source alleged that BIW did not provide the government with accurate data during negotiations of the modification.

Prior to the modification and the allegation, the Navy waived a DCAA audit of the BIW proposal. However, SUPSHIP/Bath and the Naval Sea Systems Command conducted separate technical analyses of the proposal, which included a review of BIW labor hours and material costs. The contracting officer said that sufficient information existed to negotiate the modification because of the technical analyses and existing agreements on labor rates.

In response to the allegation received by the Navy, a SUPSHIP/Bath contract administrator reviewed the labor and overhead rates in the contract modification. The Navy and a contractor negotiate agreements (called forward pricing rate agreements) that cover labor and overhead rates for future contract proposals. SUPSHIP/Bath and BIW had established a composite rate agreement covering 3 years (1989 through 1991). BIW's proposal used the composite rate in computing its proposed price. According to the contract administrator, however, BIW should not have used the composite rate because many labor hours in the proposal had already been incurred during 1988—a period not included in the composite rate. Rather, BIW should have used the actual lower rates in effect during 1988.

DCAA's Post-Award Audit

After the results of the review by the contract administrator, the Navy requested that DCAA perform a post-award defective pricing audit of this contract modification pursuant to Public Law 87-653, as amended. The law requires that, with certain exceptions, contractors submit cost or pricing data in support of proposed prices for noncompetitive contracts or modifications to enable the contractual parties to negotiate a fair and reasonable price to the government. Contractors certify that the data submitted is accurate, complete, and current. The law further requires that a clause be included in the contract giving the government the right to a price reduction if the contract price was overstated because the certified data submitted was inaccurate, incomplete, or noncurrent.

In its post-award report in March 1990, DCAA said that cost or pricing data submitted by BIW was not accurate, complete, or current as of the date of agreement on price. DCAA questioned the use of the projected labor rates and recommended a price reduction of about \$546,000.

BIW representatives said that they disagreed with the conclusions reached by DCAA in its audit report. They said that BIW disclosed to the Navy that many labor hours were incurred during 1988. In addition, the contracting officer did not rely on the information because the negotiation was settled on a bottom-line basis.

In response to the DCAA audit, the Naval Sea Systems Command is responsible for initiating a price reduction under Public Law 87-653 if the action is appropriate after reviewing the information. In April 1991, even though BIW disagreed with the conclusions in the audit report, BIW agreed to a voluntary reduction in the contract price of \$383,874 to reach an equitable settlement. BIW also agreed to pay interest of \$37,691.

Contract Restructuring

The restructuring agreement was not supported by detailed cost and pricing data. Instead BIW argued that its design of many of the sophisticated features of the DDG-51, such as the reduced radar cross-section, entailed a laborious, "iterative" engineering process that could not reasonably have been anticipated at the time of the original contract and could not be readily quantified. The Navy, while recognizing that this was an unusual modification, agreed with BIW's position and negotiated the restructuring with no detailed data on this portion.

Rationale for Restructuring

The Secretary of the Navy testified in January 1990 that the Navy became aware, 4 years after the contract award, that the effort required by the shipbuilder to achieve the Navy's goal of reducing the ship's radar cross-section was clearly greater than the specific requirements of the original contract. The Secretary said the restructuring restored an equitable sharing of the risk between the Navy and BIW in light of significant changes in risk resulting from the increased effort needed to reduce the ship's radar cross-section.

BIW representatives commented that the restructuring was necessary because they were awarded a fixed-price incentive type of contract. They said that it has become widely recognized that the use of a fixed-priced contract was not workable or compatible with the developmental nature of a highly complex warship. They said they had previously requested the Navy to restructure the contract to a cost-reimbursable contract, but that the Navy declined to do so.

In response to a draft of our January 1990 report, BIW stressed that the restructuring was necessary "to more appropriately share risks on a contract which both parties by 1989 had come to agree required restructuring." BIW also pointed out that it provided additional consideration to the Navy in the form of liquidated damages, extended warranties, and the company's commitment to maintain high manning levels on the lead ship until delivery.

The contracting officer said that the Navy relied on the contents of a letter from the chairman of BIW to the Naval Sea Systems Command in July 1989 as the key document in the Navy's decision to restructure the contract. The letter discussed, in general terms, that many aspects of the lead ship design were developmental and broader in scope than envisioned at the time of the original contract award. The developmental issues included the radar cross-section, as well as several other systems, such as the collective protection system, which protects the crew from

contaminated air. BIW did not quantify the cost impact of the developmental issues either separately or in total, and the letter said that the total impact on BIW's work from these issues may never be fully known or quantified.

Prior to awarding the contract modification, the Navy had legal concerns relating to the restructuring. BIW lacked data to establish the cost of the developmental design work, which was the basis for the restructuring. Navy legal counsel concluded that the proposed restructuring was highly unusual but that, under the circumstances, it was not improper, provided its ultimate impact was fully assessed and judged to be reasonable. The Naval Sea Systems Command then decided that the anticipated cost of the restructuring was fair and reasonable, and the contracting officer bound the government to a changed contract arrangement by executing the modification.

**Concerns Raised on
Adequacy of Support Prior
to Modification**

The Naval Sea Systems Command performed a legal analysis of the proposed contract restructuring in August 1989 at the contracting officer's request. According to the analysis, the submissions by BIW had been less than specific regarding the basis for requesting the restructuring. The vagueness was attributable to a number of causes, including the difficulties created by the classified nature of the underlying subject matter (radar cross-section) and BIW's general laxity in generating proposal support.

In the legal analysis, Navy counsel pointed out, however, that BIW was entitled to an equitable adjustment under the contract, basically for changes that related to radar-cross section. The reasons were that the contract requirements in that area were "very brief, very general, and very vague." These factors necessitated that BIW, according to the analysis, perform significant additional work not initially contemplated by the contracting parties to meet the Navy's ultimate goal of reducing the radar cross-section.

The legal analysis further pointed out that the Navy had a difficult time in quantifying the adjustment due BIW. BIW presented no evidence of an attempt to quantify the adjustment to which it believed it was entitled in the usual manner of identifying a specific increase in target cost, target profit, and ceiling price. Navy counsel stated that, ordinarily, a contractor's claim will fail if it cannot be quantified, since the contractor bears the burden of proof in showing not only entitlement to an adjustment, but also the amount of the adjustment. The analysis recognized,

however, that even though the exact amount cannot be shown, monies can be recovered where the Navy's liability and a basis for estimating the amount are proven. Navy counsel concluded in the analysis that the contract restructuring was highly unusual, but not improper, provided the ultimate impact was fully assessed and judged to be reasonable.¹

Inadequate Support for the Navy's Decision to Restructure the Contract

The Navy was responsible to ensure that the ultimate impact of the restructuring was judged to be fair and reasonable. We have found no documentation to show how the Navy decided that the restructuring's cost impact represented a reasonable price for BIW's work. According to the contracting officer, he attempted to obtain detailed information from BIW but was told that it was not available.

The contracting officer also said that the Naval Sea Systems Command's representatives believed that BIW was entitled to the restructuring, and representatives of the Assistant Secretary of the Navy for Shipbuilding and Logistics agreed with the entitlement. He told us that the base contract and the intent of the contract were considered in connection with reviewing BIW's proposal. In addition, data existed within the Navy on these issues, such as an internal briefing paper on the radar cross-section prepared by the destroyer program office.

We cannot dispute, given the nature of the design and evaluation efforts, the fact that it might have been difficult for BIW to be precise with respect to the additional work it performed and its cost. However, BIW at least should have furnished a basis for estimating the costs, and the Navy should have determined and documented whether the estimates supported BIW's proposal.

The Navy also did not document an analysis of the value of certain additional items included in BIW's proposal. These items included (1) releasing the Navy from liability under pre-existing claims, (2) foregoing contract adjustments on prior engineering change proposals, (3) extending the warranty of the lead ship, (4) completing design and construction within the current schedule, and (5) accepting a liquidated damages clause for delays in the delivery of the lead ship. This offer was not directly related to the additional radar cross-section work, but was proposed and accepted as further consideration for the contract

¹The Navy counsel's analysis illustrates that a recognized vehicle for converting a fixed-price contract to a cost-reimbursable contract is Public Law 85-804, which authorizes extraordinary contractual relief to facilitate the national defense. The statute requires 60-days notice to the Congress before using the authority to obligate the government to an amount over \$25 million.

modification. None of the documentation we reviewed discussed the validity and value of the pre-existing claims, the value of the contract adjustments, or the need for and value of the extended warranty.

**Concern Over Precedent
Established by the
Restructuring**

In our January 1990 report on the cost and schedule problems with the DDG-51 program, we discussed our concerns that the contract restructuring at Bath Iron Works could establish an inappropriate precedent for shipbuilders having difficulty with fixed-price contracts. Near the conclusion of our current review in March 1991, the Navy negotiated a major contract modification with Ingalls Shipbuilding on the first follow ship in the destroyer program (DDG-52). The proposal for this modification had many similarities to the contract modification with Bath Iron Works and illustrates our concerns discussed in the January 1990 report.

The Navy awarded Ingalls Shipbuilding a fixed-price incentive contract in May 1987 at \$162 million, mainly for the construction of the DDG-52. Ingalls' proposal, submitted in November 1989, included (1) construction aspects of implementing radar cross-section requirements, (2) delivery of late and deficient construction drawings (and revisions to drawings) to Ingalls by BIW on behalf of the Navy, and (3) changes in the ship's capabilities for rearming helicopters. The problems that led to the proposal are the result of concurrent development and construction in the destroyer program.

The proposal included, as one option, restructuring the contract by altering the sharing ratio and increasing the contract ceiling price. We discussed our concerns with the proposal in a December 1990 letter to the Secretary of Defense. The proposal was settled, without restructuring, in March 1991 by increasing the target price about \$77.4 million and the ceiling price about \$96.4 million. These amounts are large in relation to the original contract value of \$162 million. Accordingly, as part of our ongoing work on cost, schedule, and performance issues in the destroyer program, we are currently reviewing the documentation supporting this modification.

Conclusions

As a result of the Navy and DCAA review of the allegation that inaccurate cost data was submitted to support the current modification, BIW agreed to a voluntary price reduction of about \$384,000. The more important issue, however, is the contract restructuring that increased Navy payments to BIW by about \$37 million without detailed supporting

Chapter 5
Issues Relating to the Destroyer
Contract Modification

data. Even though we recognize the technical challenges BIW faced on this program, the Navy cannot determine whether the cost associated with the restructuring was fair and reasonable. The Navy should have required sufficient supporting data to ensure that the negotiated arrangements were equitable. An agreement based on just the general concerns presented by BIW represents what we consider a dangerous precedent for other contractors experiencing similar difficulties. We believe the recent Ingalls proposal illustrates our concern.

The Navy's Review of the Allegations and Its Oversight of Contracts at BIW

Even though several million dollars will be returned to the government as a result of the Navy's review, we believe the Navy's actions were inadequate. In our opinion, the Navy should not have relied primarily on the local oversight office at Bath to conduct the review, and the Naval Inspector General should have done a better job planning, documenting, and reporting the results of the review.

Moreover, we believe a primary cause of the problems that the allegations disclosed was ineffective Navy oversight of its contracts with BIW. For example, allegations of improper labor time charges had merit. Also, DCAA has reported on deficiencies in BIW's time-charging system for several years, and the Navy has not required BIW to establish a better system. Other issues, such as the lack of documentation on ripout and rework on the cruiser program and the lack of adequate cost data to support the contract restructuring, illustrate that the Navy has not exercised effective stewardship over the government's interests.

Inadequate Navy Review of the Allegations

In October 1989, the Director of Investigations for the Inspector General of the Naval Sea Systems Command referred the allegations to SUPSHIP/Bath, which was tasked to perform a review of each allegation. SUPSHIP/Bath assigned experienced contract administrators to determine the validity of each allegation. It was responsible for the on-site review and requested DCAA to assist in many areas. However, the Naval Inspector General, the focal point for receipt and tasking to Navy organizations of Navy hotline allegations, subsequently assumed control of the review and assembled a team that performed several brief site visits to Bath during the review.

Based on the site visits and written reports from SUPSHIP/Bath and DCAA, the Naval Inspector General issued two reports. The first report, issued in February 1990, provided extensive data on each of the allegations based primarily on work performed by SUPSHIP/Bath. As part of the first report, the Naval Inspector General tasked DCAA to perform several additional audits in connection with the allegations. In the second report, issued in May 1990, it presented a brief status of the actions taken by the Navy in connection with the allegations.

Subsequent to the second report, DCAA issued a series of audit reports concerning improper charges in the cruiser and destroyer programs. SUPSHIP/Bath and BIW participated with DCAA in conducting these audits. These reports were issued periodically up to February 1991 and covered

improper charges associated with issues such as drawing revisions, revision notices, and supervision.

During the course of its work, DCAA referred some concerns on possible intentional mischarging to the Naval Investigative Service. In December 1990, the Naval Investigative Service concluded that its work did not disclose any intentional mischarging.

In April 1991, according to a representative of the Naval Inspector General, it was continuing to assess the SUPSHIP/Bath and DCAA reports and had not decided on what action to take or whether to issue any additional reports.

**Selection of SUPSHIP/Bath
to Review Allegations**

In our opinion, SUPSHIP/Bath should not have been placed in a position to determine the validity of the reported allegations because it is responsible for overseeing BIW performance under various contracts and negotiating contractual agreements with BIW. Serious questions can be raised whether SUPSHIP/Bath was meeting its responsibilities if, as alleged, significant levels of improper charges were identified.

Despite the intentional or potentially criminal nature of the activities cited in the allegations, SUPSHIP/Bath was tasked to review the allegations, although its personnel reviewing the allegations were contract administrators, not investigators or auditors. Moreover, contrary to normal investigative practices, SUPSHIP/Bath informed BIW about the details of the allegations, and BIW became a major participant in reviewing the allegations. Three months after SUPSHIP/Bath began its review, DCAA referred certain matters to the Navy's professional investigative unit, the Naval Investigative Service.

**Other Deficiencies in the
Navy's Review of the
Allegations**

The Naval Inspector General had ultimate responsibility for the Navy's review of the allegations. We also found deficiencies relating to the planning, documenting, and reporting of its work. For example, as discussed in chapter 3, the Navy concluded, without adequate review and documentation, that the allegation on ripout and rework did not have merit.

The Naval Inspector General's first report of the investigation had major inaccuracies, and the two reports, in general, did not thoroughly address some key areas. Although SUPSHIP/Bath and DCAA have since prepared reports for the Naval Inspector General on various limited segments of the allegations, they have not written a comprehensive report on the

Navy's overall assessment of the allegations, which includes findings, conclusions, and recommendations. Specifically, the Navy needs to document the extent of the problems, why the problems occurred, and what needs to be done to prevent a recurrence.

Several examples of the deficiencies in the Naval Inspector General's reports and supporting work follow.

The Naval Inspector General did not prepare a written investigative plan or audit program and had no working papers to support its work. The Naval Inspector General representatives said they did not prepare working papers to avoid public disclosure of interim audit results via a Freedom-of-Information-Act request. They also stated that the reports serve as the working papers.

For example, the Naval Inspector General's first report provides a discussion of the contract modification that restructured the lead ship contract to increase the Navy's share of contract costs. The discussion in the report provides an example of the importance of working papers. The report said that unproven allegations fueled suspicion that the funding was not well supported in light of certain cost and contract information; however, the suspicions "were allayed by facts available in the headquarters offices of the Navy." The Naval Inspector General representative responsible for this statement is no longer employed by that office. Without a record of the facts gathered at the meetings, there is no way to determine the basis for the position in the report. (See chapter 5 for a discussion of the contract modification.)

The Naval Inspector General's first report also contained many significant factual errors and misleading statements. For example, the report stated that, as part of its quality assurance program, SUPSHIP/Bath regularly reviews revision notices to determine whether labor mischarging has occurred. The report then stated that SUPSHIP reviewed revision notices on the DDG-51 and found cases of mischarging; the amount of mischarging was then compared with amounts spent on revisions. The statements in the report were inaccurate. SUPSHIP/Bath's program has no provisions for determining whether improper charging has occurred. Also, the numbers were confused with the results of SUPSHIP/Bath's review of alleged improper charges in the cruiser program and were unrelated to any improper charges in the destroyer program.

A SUPSHIP/Groton (Connecticut) contract administrator, responsible for reviewing the allegation of ripout and rework in the cruiser program,

said that the description of his review of ripout and rework in the first report was misleading. For example, contrary to implications in the report, he did not inspect repairs related to the revision notices under review; the ships were no longer physically located at the shipyard. Also, the contract administrator said that, based on the confusing presentation of this data in the report, the Naval Inspector General representative who prepared the report did not understand the information discussed.

Although DCAA had previously reported its concerns on BIW's internal controls, the Naval Inspector General did not include in its reports any major discussion of internal control weaknesses at BIW. However, in our opinion, the overriding issue concerning the review of the allegations was the lack of adequate data on contract charges. Thus, we believe that the Naval Inspector General could not address the substance of the allegations without addressing the need for better data on contract charges and better internal controls.

The Naval Inspector General did not adhere to Navy instructions for hotline investigations. Among other things, the instructions require that Navy personnel investigating these complaints meet standards for establishing records that are sufficient to evaluate an investigation. Further, the instructions also require reports to be straightforward, logical, and accurate.

Need for Better Controls and Oversight at BIW

We believe many of the problems disclosed by the allegations could have been avoided by better Navy monitoring and oversight of contracts. The previous chapters discussing each of the allegations pointed out numerous examples of the need for better oversight.

- Contractual disputes on the cruiser program that took several years to resolve. Little progress was being made on these issues before receipt of the allegations. Resolution of these issues resulted in recovery of \$2.2 million by the Navy (see ch. 2).
- Because of inadequate documentation of ripout and rework on the cruiser program, there is no way to be sure that the Navy was not charged for work that was never done (see ch. 3).
- Costs were improperly charged to a cost-reimbursable contract rather than a fixed-price contract, and the true extent of such improper charges will never be known because of problems with the time charging system at BIW (see ch. 4).

- The cost and pricing data submitted for the technical part of the destroyer contract modification had problems, and the Navy approved the contract restructuring without adequate documentation (see ch. 5).

DCAA Concerns With BIW Internal Controls

Besides the concerns stemming from the specific allegations, DCAA has for several years recommended improvements in internal controls over BIW's time-charging system.

After receiving the allegations, the Naval Inspector General tasked DCAA to perform a comprehensive labor audit aimed at determining the accuracy and reliability of BIW's labor cost accounting system. DCAA's February 1990 report indicated that the BIW system significantly lacked adequate internal controls. According to government auditing standards, internal controls include a plan of organization and methods and procedures adopted by management to ensure that (1) goals and objectives are met, (2) resources are used consistent with laws, regulations, and policies, (3) resources are safeguarded against waste, loss, and misuse, and (4) reliable data are obtained, maintained, and fairly disclosed in reports.

In its discussion of inadequate internal controls, DCAA reported that time-keeping procedures provide little assurance that labor costs were properly charged, and, as a result, it found several cases of mischarging. The DCAA report pointed out that, although BIW corrects cases of mischarging when identified, BIW has not corrected deficiencies in its labor-charging system.

In December 1990, the Navy and DCAA randomly selected and interviewed BIW employees to determine the accuracy of their time records. They found 6 time-charging problems associated with 5 of 10 employees selected for review. The resulting February 1991 report identified the following:

- one employee mischarged 8 hours to an improper contract;
- a supervisor prepared and signed time cards for two employees before the employees completed their assignment;
- supervisors had not signed time cards for two employees for the previous day; and
- one employee did not have a completed time card for the previous day.

The DCAA report said that these types of discrepancies have been previously reported in past reviews. The report said that, because of the

repetitive nature of the deficiencies, BIW representatives must vigorously stress needed corrective actions and reemphasize adherence to policies and procedures to strengthen their internal controls. The report also said that BIW representatives continuously fail to address the causes of these discrepancies and only address the specific cases.

DCAA has recommended for several years that the Navy not validate BIW's cost and schedule control system until improper time card charging procedures for production workers were rectified. According to DCAA representatives, supervisors complete the portion of the time card showing which jobs the direct labor employees worked on. Also, the workers do not sign their time cards to show their approval of the charges entered by their supervisors. Thus, DCAA believes that the direct labor hour charges cannot be verified and are subject to manipulation by supervisors who are also responsible for meeting labor hour budgets.

In December 1989, DCAA recommended that 1.3 percent of BIW's progress payments be withheld until BIW remedied the time card problem. As of April 1991, although discussions between the Navy, DCAA, and BIW were ongoing, time-charging practices for the production workers had not changed.

Conclusions and Recommendation

Even though the Navy's review of the allegations resulted in the return of several million dollars from BIW, we believe its review was inadequate and that the true extent of the problems will never be known. The Navy did not do a rigorous, independent review, and in several areas limited data makes a thorough accounting impossible.

Moreover, the allegations highlighted what we believe is ineffective Navy oversight of its contracts at BIW. DCAA has long recommended improvements in BIW's time-charging system, but the Navy has not instituted better controls. We recommended in chapter 4 that the Navy work with BIW on those controls. In several other areas, more on-site monitoring by the Navy could help ensure that the government's interests are better protected.

Therefore, we recommend that the Secretary of the Navy review and strengthen oversight activities at BIW through measures such as increased monitoring, prompt attention to contract management issues, and improvements in internal controls.

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